

Chapter 22A
Steel
Comparison Summary

Chapter 22 in the *IBC* and Chapter 44 of *NFPA 5000*, cover the design of steel structures.

IBC 2003

IBC covers steel design in the 8 pages of Chapter 22. Structural steel design requirements are found in the AISC reference standards, which are adopted essentially without amendment. Most of the chapter is devoted to design requirements for cold-formed steel structures.

NFPA 5000

NFPA 5000 covers steel design in the 6½ pages of Chapter 44. As with the *IBC*, structural steel design requirements are found in the AISC reference standards, which are adopted without amendment. The balance of the chapter is chiefly devoted to design requirements for cold-formed steel structures.

Summary

The steel design provisions of both model codes are similar.

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2001 CBC – Chapter 22A	IBC – Chapter 22	Comments
Division I - General 2201A – Scope Quality, testing and design of structural steel used in buildings or structures.	2201 General 2201.1 Scope.	Similar
2202A - Standards of Quality	2205 Structural Steel	No effect
A.1 Material Standards. References UBC Std. 22-1.	Referenced standards: AISC LRFD (1999) - Sec. A.3 AISC 335-89s1 (ASD) - Sec. A.3	Must refer to material Standard (e.g. ASTM A36, 572) for Fy, Ft, etc. IBC does not continue model code org. standards
A.2 Design Standards. ANSI/ASCE 8 Spec. for design of cold-formed stainless steel.	2209.1	Same
A.3 Connectors. ASTM A502, Structural Rivets	AISC LRFD (1999) AISC 335-89s1 (ASD) - Sec. A3.3	Same
2203A - Material Identification	2003 Identification and Protection of Steel for Structural Purposes	No effect
A.1 General. Steel either identified or tested.	2203.1 Identification	Same
A.2 Structural Steel. Identification requirements.	2203.1 Identification - general for any structural steel; refer. ASTM	CBC has provision for Fy > 36 ksi and marking steel Review ASTM Standards.
A.3 Cold-formed Steel. Identification requirements.	2203.1 defers to referenced standard - AISI-NASPEC	CBC has provision for Fy > 33 ksi and marking steel Verify ID requirements in AISI-NASPEC.
A.4 Cold-formed Stainless Stl. Identification requirements.	2203.1 defers to referenced standard - ASCE 8	CBC has provision for marking steel Verify ID requirement in ASCE 8.
A.5 Open-web Steel Joists. Identification requirements.	2203.1 defers to referenced standards (SJI, 1994)	CBC has provision for marking at fabrication Verify ID requirements in SJI Specifications.
-	2203.2 Protection	IBC has provision for protection (e.g. paint) of steel
2204A - Design Methods	2205 Structural Steel	
A.1 LRFD. References Div. II and IV (AISC LRFD Provisions).	2205.1 References AISC LRFD (1999) and AISC-HSS (2000) - LRFD	IBC ref. current standards, replaces 1993 ed. LRFD, and adoption of AISC-HSS new to code. Review - training, OSHPD support programs
A.2 ASD. References Div. III and V (AISC ASD Provisions).	2205.1 References AISC 335-89s1 (ASD) Supplement No. 1 dated 12-17-01	Review ASD Supplement No. 1 dated 12-17-01 re: training and OSHPD support programs
2205A - Design and	2205 Structural Steel	

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2001 CBC – Chapter 22A	IBC – Chapter 22	Comments
Construction Provisions		
A.1 General.	2205.1 General	Similar
A.2 Structural Steel Construction. References Div. II & Div. III	2205.1 references AISC LRFD (1999) and AISC 335-89s1 (ASD)	IBC references current AISC standards for LRFD and ASD, also ref. AISC HSS (2000) - new reference
A.3 Seismic Design Provisions for Structural Steel. References Div. IV and Div. V.	2205.2 - ref. AISC 341 Parts I and III for SDC A, B, C; AISC 341 Part 1 for SDC D, E, F 2205.3 Seismic Requirements for Composite Construction	AISC 341-02 is the current seismic design standard (71 pages) - assess re: differences with CBC provisions Review 341-02 for training and OSHPD support program changes. Review IBC Sec. 2205.3 for training, support program
A.4 Cold-formed Steel Construction. References Div. VI and Div. VII. OSHPD amends re: steel deck diaphragm design, weld washers	2209.1 - references AISI-NASPEC (2001)	IBC references current AISI Specification; review continuation of OSHPD amendment; review changes in AISI standard to determine staff training needs
-	2209.2 Composite slabs on steel decks - IBC references ASCE 3.	ASCE 3 is new standard to code, review training needs
A.5 Cold-formed Stainless Steel Construction - ANSI/ASCE 8.	2209.1 - references ASCE 8	Same
-	2210 Cold-Formed Steel Light-Framed Construction 2210.1 General - references <i>AISI Standard for Cold-Formed Steel Framing - General Provisions</i> 2210.2 Headers - references <i>AISI Standard for Cold-Formed Steel Framing - Header Design</i> 2210.3 Trusses - references <i>AISI Standard for Cold-Formed Steel Framing - Trusses</i>	IBC adopts new standards not previously codified Review for adoption by OSHPD, training and code support programs
A.6 Design Provisions for Stud Wall Systems. References Div. VIII.	2211 Cold-Formed Steel Light-Framed Shear Walls	Substantial change from CBC - see Div. VIII comments Review test methods and data, probably do not adopt gypsum board sheathing assemblies
A.7 Open-web Steel Joists and Joist Girders. References Div. IX. A.7.1 - OSHPD amends re: material tests and verification tests - 2231A	2206 Steel Joists 2206.1 - references SJI Specifications (1994 ed.)	Same Study continuation of CBC Sec. A7.1 (OSHPD amendment)

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A.8 Steel Storage Racks. References Div. X, with provision for no reduction of "W" for rack located in seismic zone 3 or 4.	2208 Storage Racks 2208.1 adopts RMI Specification, and Sec. 9.6.2.9 of ASCE 7 for seismic design.	Refer to Div. X comments IBC references current RMI standard
A.9 Steel Cables. References Div. XI.	2207 Steel Cable Structures 2207.1 references ASCE 19	IBC references current standard (1996 ed.); refer to Div. XI comments
A.10 Welding. References Div. II, III, VI, VII, and approved national standards. A.10.1 OSHPD amendment re: AWS D1.1, D1.3 chemical properties A.10.2 OSHPD amendment requiring welded splices to be detailed	2204.1 Welding	Similar Study continuation of OSHPD amendments A.10.1 and A.10.2
A.11 Bolts. References Div. II, III for HS bolts; anchor bolt construction provisions and base plate hole tolerances.	2204.2 Bolting 2204.2.1 Anchor Rods	Similar regarding HSBs, 2003 model code does not contain the CBC provision allowing oversized hole at base plates - review referenced standards for similar provisions.
A.12 Column Base Plate. DSA amendment to 2205A.11 for shear transfer analysis at oversized base plate holes. Not adopted by OSHPD	-	-
A.13 Welded Shear Connectors. OSHPD amendment allowing 1/3 of tabulated values for shear studs used other than composite design (e.g. collectors, chords).	-	Review ASCE 3. Study continuation of A.13 (OSHPD amendment) in IBC Sec. 2209.2
Division II - Design Standard for LRFD Specification for Structural Steel Buildings 2206A adopts <i>LRFD Specification for Structural Steel Buildings</i> , dated 12-1-93, published by AISC.	2205.1 adopts AISC-LRFD (1999) and AISC-HSS (2000)	AISC-LRFD (1999) is the current edition; CBC adopts 1993 edition. Staff training for LRFD required. AISC-HSS adoption is new to code. Need training in use of HSS standard.
2207A - Amendments adopt appendices B, E, F, G, H, J, K; and defers load combination requirements to Sec. 1612A.2.	-	1999 appendices are integral part of Specification (no amendment required).
Division III - Design Standard for Specification for Structural Steel Buildings - ASD and	2205.1 adopts AISC 335 (1989 ASD and Supplement No. 1 dated 12-17-01)	Supplement No. 1, dated 12-17-01 is the current amendment to the 1989 ASD Specification.

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Plastic Design 2208A adopts the <i>Specification for Structural Steel Buildings Allowable Stress Design and Plastic Design</i> , dated June 1, 1989, published by AISC. Also adopts App. B5, F7, K4.		Note - AISC is developing the 2005 Standards, which will incorporate both ASD and LRFD into one Specification. Review Supplement No. 1 to determine training needs.
2209A - Amendments 1. Amends A.4 -code loads govern 2. Deletes A4.1, A4.4, A4.5. 3. Amends A5.2, no 1/3 inc. for load comb. 1612A.3.1. 4. Amends J1, 10; OSHPD amendment re: bolts in combination with welds 5. Amends J3, 7; allowable bearing at bolt holes	-	Study continuation of OSHPD amendments (items 4, 5)
Division IV - Seismic Provisions for Structural Steel Buildings 2210A adopts (per OSHPD amendment) <i>Seismic Provisions for Structural Steel Buildings</i> , dated 4-15-97 by AISC, including Supplement No.1, dated 2-15-99. Note - 2002 OSHPD Supplement, adopts AISC Supplement No. 2 to the 97 Seismic Provisions.	2205.2 Seismic Requirements for Steel Structures. Adopts AISC 341-02. For SDC D, E, and F, compliance with 341-02, Part I (LRFD) is required.	IBC adopts current AISC Standard for seismic design. Study IBC 2205.2.1 provisions for SDC A, B, C - provides conditional requirement for use of AISC 341. May amend. Staff training required.
2211A - Amendments Amendments incorporate Supplement No. 1 provisions.	-	IBC provisions current.
Division V - Seismic Provisions for Structural Steel Buildings for Use with ASD Seismic 2212A - General ; refers to load combination per 1612A.3 (ASD) must comply with Div. III and V.	2205.2 Seismic Requirements for Steel Structures. Adopts AISC 341-02, Parts I and III allowed (Part 3 is ASD alternate provision)	Staff training required. ASD methodology uses both Part I and Part III provisions (Part I is LRFD).
2213A - Seismic Provisions for Zones 3 and 4 A.1 General. A.2 Definitions A.3 Symbols and Notations A.4 Materials 4.1 Quality (ASTM Spec.);	See AISC 341-02.	Staff training required. ASD use is limited.

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2001 CBC – Chapter 22A	IBC – Chapter 22	Comments
OSHPD amendment re: weld material requirements. 4.2 member strength requirements (OSHPD amend - F_s) A.5 Column Requirements A.6 Ordinary Moment Frame Requirements A.7 Special Moment-resisting Frame Requirements (SMRF) A.8 Requirements for Braced Frames A.9 Requirements for Special Concentrically Braced Frames A.10 Eccentrically Braced Frame (EBF) Requirements A.11 Requirements for Special Truss Moment Frames		
2214A - Seismic Provisions for Zones 1 and 2 (Not adopted by OSHPD).	-	No effect
Division VI - LRFD Design Specification for Cold-Formed Steel Structural Members 2215A adopts <i>LRFD Specification for Cold-Formed Steel Structural Members</i> , dated 3-16-91, published by AISI. Deletes Sec. A4.1, A4.2, A4.4, modifies A5.1.4.	2209 Cold-Formed Steel 2209.1 adopts AISI-NASPEC (2001 edition per Chapter 35).	IBC references current AISI Specification, substantial revision from CBC-referenced 1991 Specification. Staff training required.
2216A - Amendments Deletes A4.1, A4.2, A4.4; A5.1.4 revised to require code-prescribed loading.	-	Study
Division VII - Specification for Design of Cold-Formed Steel Structural Members 2217A adopts <i>Specification for Design of Cold-Formed Steel Structural Members</i> , 1986 (with December 1989 Addendum), published by AISI.	2209 Cold-Formed Steel 2209.1 adopts AISI-NASPEC (2001 edition per Chapter 35).	IBC references current AISI Specification, substantial revision from CBC-referenced 1991 Specification. Staff training required.
2218A - Amendments 1. delete A4.1, A4.2. 2. amend A4.4, re: 1612A.3 load 3. revise E.6 (screw design std.)	-	Study

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Division VIII - Lateral Resistance for Steel Stud Wall Systems 2219A - General Allows plywood-sheathed walls with steel stud framing to resist wind/seismic loads (OSHDP amends to allow only plywood, not OSB)	2211 Cold-Formed Steel Light-Framed Shear Walls Sections 2211.1 through 2211.4	IBC Sec. 2211.1 through 2211.4 are substantial revision from CBC, such as Type I and Type II (perforated) SW. Study required, evaluate test procedures and data to validate adoption of provisions (i.e. gypsum sheathing probably will not be adopted).
2220A - Special Requirements in Seismic Zones 3 and 4 A.1 general A.2 boundary member and anchorage (OSHDP amends re: load) A.3 panel sheathing (OSHDP amends re: plywood only)	2211.4 Seismic Design Categories D, E, F	Evaluate SDC methodology to Zone 3/4; may need to limit healthcare facilities to SDC D, E, F design/construction provisions Evaluate changes from CBC provisions May not adopt provisions for gypsum sheathing
Table 22A-VIII-A Nominal Shear Values - Wind	Table 2211.2 (1) Nominal Shear Values - Wind	See above
Table 22A-VIII-B Not adopted by OSHDP	Table 2211.2 (2) Nominal Shear Values - Wind (gypsum board)	Gypsum board sheathing Study - do not adopt
Table 22A-VIII-C Nominal Shear Values - Seismic	Table 2211.1 (3) Nominal Shear Values - Seismic	See above
	Table 2211.3 Shear Resistance Adjustment Factor - Ca	Study
Division IX- Open Web Steel Joists 2221A adopts the <i>Standard Specification for Steel joists, K-series, LH-series, DLH-series and Joist Girders, 1994</i> , published by the Steel Joist Institute.	2206 Steel Joists 2206.1 adopts (1994 ed.): <i>Standard Specifications for open Web Steel Joist, K Series.</i> <i>Standard Specifications for Longspan Steel Joist, LH Series and Deep Longspan Steel Joists, DLH Series.</i> <i>Standard Specification for Joist Girders.</i>	Same
Division X - Design Standard for Steel Storage Racks Based on the <i>Specification for the Design, Testing and Utilization of Industrial Steel Storage Racks</i> , 1990 edition, by the Rack Manufacturers Institute.	2208 Steel Storage Racks 2208.1 adopts the <i>RMI Specification for the Design, Testing, and Utilization of Industrial Steel Storage Racks</i> (1997 edition per Chapter 35).	Study for staff training needs.

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2001 CBC – Chapter 22A	IBC – Chapter 22	Comments
2222A – General A.1 scope A.2 definitions A.3 materials A.4 design specifications A.5 integrity of installation 2223A - Design Procedures 2224A - Allowable Stresses 2225A - Pallet and Stacker-Rack 2226A - Frame Design 2227A - Connections 2228A - Loads 2229A - Special Rack Design Provisions	IBC has provision for seismic design per ASCE 7-02 Sec. 9.6.2.9.	
Division XI - Design Standard for Structural Application of Steel Cables for Buildings 2230A adopts ASCE Standard 17-95, <i>Structural Applications of Steel Cables for Buildings</i>	2207 Steel Cable Structures 2207.1 adopts ASCE 19 (1996 ed. Per Chapter 35) 2207.2 amends ASCE 19 re: load factors	Review current adopted standard for changes from previous standard - staff training.
Division XII - Testing and Inspection (OSHDP amendment) 2231A - General Provisions	Chapter 17 Structural Tests and Special Inspections 1704.3 Steel Construction	IBC has substantial differences from CBC, has SDC triggers
A.1 tests of structural steel	2203.1, 1704.3, Table 1704.3	Study OSHDP amendment for continuation
A.2 tests of HS bolts, nuts, washers	1704.3.3.1, Table 1704.3	Study OSHDP amendment for continuation - may need clarification
A.3 tests of end-welded studs	-	Study OSHDP amendment for continuation
A.4 inspection of shop fabrication	1704.2	Study OSHDP amendment for continuation (clarification may be needed)
A.5 inspection of welding	1704.3.1 Welding	Study OSHDP amendment for continuation (AWS cert.)
A.6 inspection of HS bolting	1704.3.3 High-Strength Bolts.	Study OSHDP amendment for continuation (clarification may be needed)
A.7 open-web steel joist and joist girder design verification tests	-	Study OSHDP amendment
A.8 tests of beam-to-column moment connections	See AISC 341-02	Study repeal - appears to be duplicative

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2001 CBC – Chapter 22A	NFPA5000 – Chapter 44	Comments
Division I - General 2201A – Scope Quality, testing and design of structural steel used in buildings or structures.	44.1 General 44.1 general scope statement.	Similar
2202A - Standards of Quality	-	No effect - addressed by referenced standards
A.1 Material Standards. References UBC Std. 22-1.	Referenced standards: AISC LRFD (1999) - Sec. A.3 AISC 335-89s1 (ASD) - Sec. A.3	Must refer to material Standard (e.g. ASTM A36, 572) for Fy, Ft, etc. IBC does not continue model code org. standards
A.2 Design Standards. ANSI/ASCE 8 Spec. for design of cold-formed stainless steel.	44.6.1.2 adopts ASCE 8 (1990 ed.)	Same
A.3 Connectors. ASTM A502, Structural Rivets	AISC LRFD (1999) AISC 335-89s1 (ASD) - Sec. A3.3	Same
2203A - Material Identification	44.1.2 Identification of Steel for Structures	No effect
A.1 General. Steel either identified or tested.	44.1.2.1 and 44.1.2.2 - steel either identified or tested per standard	Same
A.2 Structural Steel. Identification requirements.	44.1.2.1 refers to material standard (e.g. ASTM) for requirements	CBC has provision for Fy > 36 ksi and marking steel Review ASTM Standards.
A.3 Cold-formed Steel. Identification requirements.	44.1.2.1 defers to referenced standard - AISI-NASPEC	CBC has provision for Fy > 33 ksi and marking steel Verify ID requirements in AISI-NASPEC.
A.4 Cold-formed Stainless Stl. Identification requirements.	44.1.2.1 defers to referenced standard - ASCE 8	CBC has provision for marking steel Verify ID requirement in ASCE 8.
A.5 Open-web Steel Joists. Identification requirements.	44.1.2.1 defers to referenced standards (SJI, 1994)	CBC has provision for marking at fabrication Verify ID requirements in SJI Specifications.
2204A - Design Methods	44.2 Structural Steel Construction	NFPA references current AISC standards
A.1 LRFD. References Div. II and IV (AISC LRFD Provisions).	44.2.1 General. References AISC LRFD (1999) and AISC-HSS (2000) - LRFD	NFPA ref. current standards, replaces 1993 ed. LRFD, and adoption of AISC-HSS new to code. Review - training, OSHPD support programs
A.2 ASD. References Div. III and V (AISC ASD Provisions).	44.2.1 General. References AISC 335-89s1 (ASD) Supplement No. 1 dated 12-17-01	Review ASD Supplement No. 1 dated 12-17-01 re: training and OSHPD support programs
-	44.2.1.2 Web openings - adopts ASCE 23, <i>Specification</i>	Review ASCE 23, staff training

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	<i>for Structural Steel Beams with Web Openings</i>	
2205A - Design and Construction Provisions	44.2 Structural Steel Construction	NFPA references current AISC standards
A.1 General.	44.2.1 General.	Same
A.2 Structural Steel Construction. References Div. II & Div. III	44.2.1.1 references AISC LRFD (1999) and AISC 335-89s1 (ASD)	NFPA references current AISC standards for LRFD and ASD. Note - does not ref. AISC HSS (2000).
A.3 Seismic Design Provisions for Structural Steel. References Div. IV and Div. V.	44.2.2.2 - ref. AISC 341 Parts I for SDC A, B, C 44.2.3 ref. AISC 341 Part 1 for SDC D, E, F 44.2.4 Seismic Requirements for Composite Construction	AISC 341-02 is the current seismic design standard (71 pages) - assess re: differences with CBC provisions Review 341-02 for training and OSHPD support program changes. Review NFPA Sec. 44.2.2, 44.2.3, and 44.2.4 for training, support program (note - CBC references AISC 1997 Seismic Part II)
A.4 Cold-formed Steel Construction. References Div. VI and Div. VII. OSHPD amends re: steel deck diaphragm design, weld washers	44.6 Cold-Formed Steel. 4.6.1.1 adopts AISI-NASPEC (2001 ed., per Ch.2)	NFPA references current AISI Specification; review continuation of OSHPD amendment; review changes in AISI standard to determine staff training needs
A.5 Cold-formed Stainless Steel Construction - ANSI/ASCE 8.	44.6.1.2 - references ASCE 8	Same
-	44.6.2 Composite Slabs on Steel Decks adopts ASCE 3 (1991 ed.)	ASCE 3 is new referenced standard in code
-	44.7 Cold-Formed Steel Framing 44.7.1 General - references <i>AISI Standard for Cold-Formed Steel Framing - General Provisions</i> 44.7.2 Trusses - references <i>AISI Standard for Cold-Formed Steel Framing - Trusses</i> 44.7.3 Headers - references <i>AISI Standard for Cold-Formed Steel Framing - Header Design</i> 44.7.4 Prescriptive Framing (1 and 2 story dwellings)	NFPA adopts new standards not previously codified Review for adoption by OSHPD, training and code support programs OSHPD should not adopt 44.7.4 provisions (not intended for healthcare facilities)
A.6 Design Provisions for Stud Wall Systems. References Div. VIII.	44.8 Cold-Formed Steel Framing Shear Walls	Substantial change from CBC - see Div. VIII comments Review test methods and data, probably do not adopt gypsum board sheathing assemblies
A.7 Open-web Steel Joists and	44.3 Steel Joists.	Same - see Div. IX comments

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Joist Girders. References Div. IX. A.7.1 - OSHPD amends re: material tests and verification tests - 2231A	Adopts SJI Specifications (1994 ed.)	Study continuation of CBC Sec. A7.1 (OSHPD amendment)
A.8 Steel Storage Racks. References Div. X, with provision for no reduction of "W" for rack located in seismic zone 3 or 4.	44.5 Steel Storage Racks. 44.5.1 adopts RMI Spec.	Refer to Div. X comments NFPA references current RMI standard
A.9 Steel Cables. References Div. XI.	44.4 Steel Cable Structures 44.4.1 references ASCE 19	NFPA references current standard (1996 ed.); refer to Div. XI comments
A.10 Welding. References Div. II, III, VI, VII, and approved national standards. A.10.1 OSHPD amendment re: AWS D1.1, D1.3 chemical properties A.10.2 OSHPD amendment requiring welded splices to be detailed	-	Review referenced standard to determine if there is a need for charging language in code Study continuation of OSHPD amendments
A.11 Bolts. References Div. II, III for HS bolts; anchor bolt construction provisions and base plate hole tolerances.	-	Review referenced standard to determine if there is a need for charging language in code, and regarding base plate bolt hole oversize permitted by CBC.
A.12 Column Base Plate. DSA amendment to 2205A.11 for shear transfer analysis at oversized base plate holes. Not adopted by OSHPD	-	-
A.13 Welded Shear Connectors. OSHPD amendment allowing 1/3 of tabulated values for shear studs used other than composite design (e.g. collectors, chords).	-	Review ASCE 3. Study continuation of A.13 (OSHPD amendment) in NFPA.
Division II - Design Standard for LRFD Specification for Structural Steel Buildings 2206A adopts <i>LRFD Specification for Structural Steel Buildings</i> , dated 12-1-93, published by AISC.	44.2.1.1 adopts AISC-LRFD (1999)	AISC-LRFD (1999) is the current edition; CBC adopts 1993 edition. Staff training for LRFD required.
2207A - Amendments adopt appendices B, E, F, G, H, J, K; and defers load	-	1999 appendices are integral part of Specification (no amendment required).

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combination requirements to Sec. 1612A.2.		
Division III - Design Standard for Specification for Structural Steel Buildings - ASD and Plastic Design 2208A adopts the <i>Specification for Structural Steel Buildings Allowable Stress Design and Plastic Design</i> , dated June 1, 1989, published by AISC. Also adopts App. B5, F7, K4.	44.2.1.1 adopts AISC 335 (1989 ASD and Supplement No. 1 dated 12-17-01)	Supplement No. 1, dated 12-17-01 is the current amendment to the 1989 ASD Specification. Note - AISC is developing the 2005 Standards, which will incorporate both ASD and LRFD into one Specification. Review Supplement No. 1 to determine training needs.
2209A - Amendments 1. Amends A.4 -code loads govern 2. Deletes A4.1, A4.4, A4.5. 3. Amends A5.2, no 1/3 inc. for load comb. 1612A.3.1. 4. Amends J1, 10; OSHPD amendment re: bolts in combination with welds 5. Amends J3, 7; allowable bearing at bolt holes	-	Study continuation of OSHPD amendments (items 4, 5)
Division IV - Seismic Provisions for Structural Steel Buildings 2210A adopts (per OSHPD amendment) <i>Seismic Provisions for Structural Steel Buildings</i> , dated 4-15-97 by AISC, including Supplement No.1, dated 2-15-99. Note - 2002 OSHPD Supplement, adopts AISC Supplement No. 2 to the 97 Seismic Provisions.	44.2.2 Seismic Design Categories A, B, C. 44.2.3 Seismic Design Categories D, E, and F. 44.2.4 Seismic Requirements for Composite Construction. Adopts AISC 341-02. For SDC D, E, and F, compliance with 341-02, Part I (LRFD) is required.	NFPA adopts current AISC Standard for seismic design. Study NFPA 44.2.2 provisions for SDC A, B, C - provides conditional requirement for use of AISC 341. May amend. Staff training required.
2211A - Amendments Amendments incorporate Supplement No. 1 provisions.	-	NFPA provisions current.
Division V - Seismic Provisions for Structural Steel Buildings for Use with ASD Seismic 2212A - General ; refers to load combination per 1612A.3 (ASD) must comply with Div. III and V.	44.2.2 Seismic Design Categories A, B, C. 44.2.3 Seismic Design Categories D, E, and F. 44.2.4 Seismic Requirements for Composite Construction. Adopts AISC 341-02. For SDC D, E, and F, compliance with 341-02, Part I	Staff training required. ASD methodology uses both Part I and Part III provisions (Part I is LRFD).

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	(LRFD) is required.	
2213A - Seismic Provisions for Zones 3 and 4 A.1 General. A.2 Definitions A.3 Symbols and Notations A.4 Materials 4.1 Quality (ASTM Spec.); OSHPD amendment re: weld material requirements. 4.2 member strength requirements (OSHPD amend - F_s) A.5 Column Requirements A.6 Ordinary Moment Frame Requirements A.7 Special Moment-resisting Frame Requirements (SMRF) A.8 Requirements for Braced Frames A.9 Requirements for Special Concentrically Braced Frames A.10 Eccentrically Braced Frame (EBF) Requirements A.11 Requirements for Special Truss Moment Frames	See AISC 341-02.	Staff training required, use of ASD limited.
2214A - Seismic Provisions for Zones 1 and 2 (Not adopted by OSHPD).	-	No effect
Division VI - LRFD Design Specification for Cold-Formed Steel Structural Members 2215A adopts <i>LRFD Specification for Cold-Formed Steel Structural Members</i> , dated 3-16-91, published by AISI. Deletes Sec. A4.1, A4.2, A4.4, modifies A5.1.4.	44.6 Cold-Formed Steel. 44.6.1.1 adopts AISI-NASPEC (2001 edition per Chapter 2).	NFPA references current AISI Specification, substantial revision from CBC-referenced 1991 Specification. Staff training required.
2216A - Amendments Deletes A4.1, A4.2, A4.4; A5.1.4 revised to require code-prescribed loading.	-	Study
Division VII - Specification for Design of Cold-Formed Steel Structural Members 2217A adopts <i>Specification for Design of Cold-Formed Steel</i>	44.6 Cold-formed Steel 44.6.1.1 adopts AISI-NASPEC (2001 edition per Chapter 35).	NFPA references current AISI Specification, substantial revision from CBC-referenced 1991 Specification. Staff training required.

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<i>Structural Members</i> , 1986 (with December 1989 Addendum), published by AISI.		
2218A - Amendments 1. delete A4.1, A4.2. 2. amend A4.4, re: 1612A.3 load 3. revise E.6 (screw design std.)	-	Study
Division VIII - Lateral Resistance for Steel Stud Wall Systems 2219A - General Allows plywood-sheathed walls with steel stud framing to resist wind/seismic loads (OSHDP amends to allow only plywood, not OSB)	44.8 Cold-Formed Steel Framing Shear Walls Sections 44.8.1 through 44.8.3	NFPA Sec. 44.8.1 through 44.8.3 are substantial revision from CBC, such as Type I and Type II (perforated) SW. Study required, evaluate test procedures and data to validate adoption of provisions (i.e. gypsum sheathing probably will not be adopted).
2220A - Special Requirements in Seismic Zones 3 and 4 A.1 general A.2 boundary member and anchorage (OSHDP amends re: load) A.3 panel sheathing (OSHDP amends re: plywood only)	44.8.3 Seismic Design Categories D, E, F	Evaluate SDC methodology to Zone 3/4; may need to limit healthcare facilities to SDC D, E, F design/construction provisions Evaluate changes from CBC provisions May not adopt provisions for gypsum sheathing
Table 22A-VIII-A Nominal Shear Values - Wind	Table 44.8.1 (a) Nominal Shear Values - Wind	See above
Table 22A-VIII-B Not adopted by OSHDP	Table 44.8.1 (b) Nominal Shear Values - Wind (gypsum board)	Gypsum board sheathing Study - do not adopt
Table 22A-VIII-C Nominal Shear Values - Seismic	Table 44.8.1 (c) Nominal Shear Values - Seismic	See above
-	Table 44.8.2.2.4.1 Shear Resistance Adjustment Factor C_a	NFPA provision not contained in CBC
Division IX- Open Web Steel Joists 2221A adopts the <i>Standard Specification for Steel joists, K-series, LH-series, DLH-series and Joist Girders</i> , 1994, published by the Steel Joist Institute.	44.3 Steel Joists. 44.3.1 adopts (1994 ed.): <i>Standard Specifications for open Web Steel Joist, K Series.</i> <i>Standard Specifications for Longspan Steel Joist, LH Series and Deep Longspan Steel Joists, DLH Series.</i> <i>Standard Specification for Joist</i>	Same

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	<i>Girders.</i>	
Division X - Design Standard for Steel Storage Racks Based on the <i>Specification for the Design, Testing and Utilization of Industrial Steel Storage Racks</i> , 1990 edition, by the Rack Manufacturers Institute. 2222A - General A.1 scope A.2 definitions A.3 materials A.4 design specifications A.5 integrity of installation 2223A - Design Procedures 2224A - Allowable Stresses 2225A - Pallet and Stack-Rack 2226A - Frame Design 2227A - Connections 2228A - Loads 2229A - Special Rack Design Provisions	44.5 Steel Storage Racks. 44.5.1 adopts the <i>RMI Specification for the Design, Testing, and Utilization of Industrial Steel Storage Racks</i> (1997 edition per Chapter 35). NFPA has provision (44.5.3) for seismic design per ASCE 7-02 chapter 9.	Study for staff training needs.
Division XI - Design Standard for Structural Application of Steel Cables for Buildings 2230A adopts ASCE Standard 17-95, <i>Structural Applications of Steel Cables for Buildings</i>	44.4 Steel Cable Structures. 44.4..1 adopts ASCE 19 (1996 ed. Per Chapter 35) 44.4.2 amends ASCE 19 re: load factors	Review current adopted standard for changes from previous standard - staff training.
Division XII - Testing and Inspection (OSHDPD amendment) 2231A - General Provisions	Chapter 40 Quality Assurance During Construction 40.3.10 Steel Construction	NFPA has substantial differences from CBC, has SDC triggers NFPA very general pertaining to special inspections/tests, OSHPD needs to evaluate for amendment
A.1 tests of structural steel	40.3.10, Table 40.3.10 (a)	Study OSHPD amendment for continuation
A.2 tests of HS bolts, nuts, washers	40.3.10, Table 40.3.10 (a)	Study OSHPD amendment for continuation - may need clarification
A.3 tests of end-welded studs	-	Study OSHPD amendment for continuation
A.4 inspection of shop fabrication	40.3.10, Table 40.3.10 (a)	Study OSHPD amendment for continuation (clarification may be needed)
A.5 inspection of welding	40.3.10, Table 40.3.10 (a)	Study OSHPD amendment for continuation (AWS cert.)
A.6 inspection of HS bolting	40.3.10, Table 40.3.10 (a)	Study OSHPD amendment for continuation (clarification may be needed)

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A.7 open-web steel joist and joist girder design verification tests	-	Study OSHPD amendment
A.8 tests of beam-to-column moment connections	See AISC 341-02	Study repeal - appears to be duplicative